

Appl. No. 10/724,459

Supplemental Amdt. dated June 25, 2007

Reply to Office action of Jan. 19, 2007 and Notice of Non-Compliant Amdt. of May 24, 2007

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REMARKS/ARGUMENTS

Applicant sincerely appreciates the courtesy extended by Examiners Robert and Araj at the interview conducted on June 6, 2007. Pursuant to the discussion at the interview and in response to the outstanding Office action, this application is amended as follows in order to place it in condition for allowance.

Applicant affirms his provisional election, made during a telephone conference with Examiner Araj on December 29, 2006, to prosecute the invention of Group III, claims 12-17. This election was made without traverse. Claims 1-11, which were directed to the nonelected invention, are canceled. Remaining claims 12, 13, 16 and 17 include only one independent claim (12). By canceling the nonelected claims, the fee insufficiency noted in the Notice of Non-Compliant Amendment is overcome.

Claim 16 has been amended to overcome the examiner's rejection under 35 U.S.C. § 101 by removing the positive recitation of a human, i.e. a patient. The claim now states that the system sensor is "adapted for connection to a patient".

Claim 12 is amended to specify that the controller automatically varies outputs in response to inputs, with the controller inputs being automatically adjusted corresponding to operating conditions associated with the implant. Claim 12 thus claims an interactive system with inputs to a controller being automatically adjusted corresponding to conditions associated with the implant or the cement, and the controller outputs automatically varying in response to the inputs. The system thus defines a feedback loop, with implant-associated operating conditions controlling the input to the controller, which in turn controls the output to the transducer, all controlled automatically without manual operator input during operation. The automatic control operation of the system based on feedback from sensors associated with the patient or the cement is discussed in the specification at [0037] in connection with the aspect of the invention shown in Figs. 15-22.

Dependent claim 17 (original), which further addresses the automatic variation of the transducer operation (i.e. frequency and amplitude), was initially rejected under Sec. 102(b) based on Klapper et al. U.S. 5,019,083. However, as discussed at the interview, Klapper et al. U.S. 5,019,083 do not disclose, teach or suggest a system for such an interactive operation whereby the transducer is controlled by feedback from the operating conditions associated with the implant. The operation of the Klapper et al. controller is clearly adjusted manually. There are significant advantages to such an interactive, feedback-driven system configuration. In particular, the controller can thereby automatically respond as the implant loosens and becomes ready for extraction. This can be particularly important in implant revision operations because the energy input to the implant, and indirectly to the patient, can be harmful if excessive. Conversely, insufficient energy input will be ineffective in achieving the implant removal objective. The close interface (e.g. bone tissue ingrowth) between the patient and the implant

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can necessitate a relatively precise level of energy input in order to avoid harming the patient. This can best be achieved by the automatic control feedback loop enabling near-instantaneous system response to varying operating parameters associated with the patient or the implant. Implant locations in many patients tend to be somewhat compromised whereby excessive force can be particularly injurious.

There is no teaching, suggestion or motivation in Klapper et al. to provide such an interactive, feedback-driven controller-transducer-implant interconnection with an implant extraction or insertion system, such as that presently claimed.

Also pursuant to the discussion at the interview, Vandewalle et al. U.S. 6,190,392 has been carefully considered. Vandewalle et al. disclose a method and apparatus for ultrasonic removal of bone cement material with an ultrasonic power unit or console 12 providing power to hand pieces 14, 16 via a foot pedal control unit 18. See col. 6, lines 23-43 for a discussion of the application of ultrasonic power to melt the bone cement, which can thereafter be extracted by the auger head 82. Claim 12 of the present application is distinguishable because Vandewalle et al. do not disclose the automatic feedback loop and control feature in the combination presently claimed. Control of the hand pieces and the auger for melting and extracting bone cement is achieved manually by the operator pressing the foot pedals of the foot pedal control unit 18, and by manually operating the ultrasonic power unit or console 12.

Based on the foregoing, all of the claims are in condition for allowance and notice to this effect is respectfully requested. The examiner is invited to contact the undersigned by telephone if prosecution of this application can be expedited thereby.

The Commissioner is authorized to charge any excess fees to Deposit Account No. 503-424.

Substance of the June 6, 2007 Interview

1. No exhibits were shown or demonstrations conducted.
2. Claim 12 was discussed.
3. Klapper et al. U.S. 5,019,083 and Vandewalle et al. U.S. 6,190,392 were discussed.
4. The principle proposed amendments of a substantive nature related to amending claim 12 as reflected on the attachment to the Interview Summary.
5. The general thrust of the principal arguments was that the ability for the controller to respond and be adjusted automatically with respect to the operating conditions associated with the patient or the prosthesis cement would overcome the cited art.

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6. The participants also discussed addressing the notice of noncompliant amendment by either paying the \$100 fee for an extra claim, or by canceling the withdrawn claims. Applicant has chosen to cancel the withdrawn claims.

7. The general results or outcome of the interview was that the proposed amendments to claim 12 appear to overcome the cited prior art, as reflected on the Interview Summary.

I hereby certify that this paper is being filed by
facsimile transmission (571-273-8300) with the
U.S. Patent and Trademark Office.

Date of fax transmission: June 25, 2007

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Respectfully Submitted,

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